What is claimed is:

1. A recording material for holograms comprising a metal oxide porous body provided with an oxygen donor substance in the pores.

2. A recording material for holograms according to claim 1,

wherein said metal oxide porous body has an increased oxygen content with oxygen from said oxygen donor substance generated by irradiation of recording light composed of a signal beam and a reference beam.

3. A recording material for holograms according to claim 1,

wherein at least a portion of the surface of said metal oxide porous body in contact with said oxygen donor substance consists of said metal oxide capable of increased oxygen content and/or the constituent metal element of said metal oxide.

4. A recording material for holograms according to claim 1,

wherein said oxygen donor substance is water.

5. A recording material for holograms according to claim 1,

wherein the constituent metal element of said metal oxide porous body is at least one metal element selected from the group consisting of B, Mg, Al, Ca, Ti, Cr, Zn, Sr, Zr, Nb, Mo, Sn, Sb, Te, Ba, La, Ce, Nd, Eu,

Gd, Tb, Dy, Ho, Er, Tu, Yb and Lu.

6. A recording material for holograms according to claim 1,

wherein said metal element is Te.

7. A recording material for holograms according to claim 2,

wherein said oxygen content increase in the absence of irradiation of said recording light is below a level which is detectable by reproduction light.

8. A recording material for holograms according to claim 2,

wherein said metal oxide porous body is a metal oxide porous body capable of transmitting said recording light.

9. A method for manufacturing a recording material for holograms comprising a metal oxide porous body provided with an oxygen donor substance in the pores which comprises:

a step of forming a metal oxide porous body from a metal oxide precursor, and

a step of supplying an oxygen donor substance to the pores of said metal oxide porous body.

10. A method for manufacturing a recording material for holograms according to claim 9,

wherein said oxygen donor substance is water.

11. A method for manufacturing a recording

material for holograms according to claim 9,

wherein said precursor is a metal alkoxide.

12. A method for manufacturing a recording material for holograms according to claim 9,

wherein said precursor is tellurium alkoxide.

13. A recording material for holograms obtainable by a method for manufacturing according to claim 9.

14. A recording medium for holograms provided with at least a substrate material and a recording layer formed on said substrate material,

wherein said recording layer comprises a recording material for holograms according to claim 1.

15. A recording medium for holograms provided with at least a substrate material and a recording layer formed on said substrate material,

wherein said recording layer comprises a recording material for holograms according to claim 13.

16. A hologram recording method which comprises:

a recording step in which the recording layer of a recording medium for holograms according to claim 14 is irradiated with recording light composed of a signal beam and a reference beam to increase the oxygen content of said metal oxide porous body with oxygen from said oxygen donor substance generated by irradiation of said recording light in said recording layer.

17. A hologram recording method which comprises:

a recording step in which the recording layer of a recording medium for holograms according to claim 15 is irradiated with recording light composed of a signal beam and a reference beam to increase the oxygen content of said metal oxide porous body with oxygen from said oxygen donor substance generated by irradiation of said recording light in said recording layer.

18. A hologram recording method according to claim 16,

wherein the irradiation angle of said recording light on said recording layer is varied to increase said oxygen content of said metal oxide porous body in the direction of depth of said recording layer based on each irradiation angle.

19. A hologram recording method according to claim 17,

wherein the irradiation angle of said recording light on said recording layer is varied to increase said oxygen content of said metal oxide porous body in the direction of depth of said recording layer based on each irradiation angle.

20. A hologram reproduction method which comprises:

a reproduction step in which a recording medium

for holograms obtainable by a hologram recording method according to claim 16 is irradiated with reproduction light.

21. A hologram reproduction method which comprises:

a reproduction step in which a recording medium for holograms obtainable by a hologram recording method according to claim 17 is irradiated with reproduction light.